

Amendments to the Claims

Please CANCEL claims 1-67 without prejudice to or disclaimer of the subject matter recited therein.

Please ADD new claims 68-119 as follows:

68. (New) A method of making an elongated, composite, structural material, comprising the following steps:

- (a) supplying a substantially continuous length of a porous web material selected from the group consisting of paper and cloth;
- (b) laying substantially continuous, parallel strands of reinforcing cords on at least one side of the web material, with the cords running in the lengthwise direction of the web material;
- (c) applying a thermosetting-resin-precursor mixture to each of the cords and the web material;
- (d) forming the web material into a sleeve-like configuration having the desired cross-sectional shape of the structural material, with the cord-carrying side of the web material facing the interior of the configuration;
- (e) depositing on the cord-carrying side of the web material a fluid matrix-resin-precursor composition that is compatible with the thermosetting-resin-precursor mixture applied to each of the web material and the cords in step (c) and which, when reacted, yields a rigid matrix resin; and
- (f) holding the sleeve-like configuration together under conditions that are conducive to the setting of (i) the matrix resin in the core space and (ii) the thermosetting resin applied to each of the web material and the cords, and for a length of time sufficient for all of the resins to set, whereby the cords are bonded to the web material, a core space

within the sleeve-like configuration is substantially filled with the matrix resin, and the matrix resin is bonded to the sleeve-like configuration.

69. (New) The method of claim 68, wherein the matrix-resin-precursor composition comprises the reactants and blowing agent necessary to form a rigid foamed polyurethane as the matrix resin.

70. (New) The method of claim 68, wherein the web material is paper.

71. (New) The method of claim 68, wherein the thermosetting-resin-precursor mixture comprises the reactants necessary to form an epoxy resin.

72. (New) The method of claim 68, wherein the cords comprise synthetic fibers or filaments.

73. (New) The method of claim 72, wherein the cords comprise glass fibers or filaments.

74. (New) The method of claim 72, wherein the cords comprise polyester fibers or filaments.

75. (New) The method of claim 68, wherein the cords are laterally connected to each other in order to keep the cords in place during at least steps (b) and (c).

76. (New) The method of claim 75, wherein the cords are laterally connected to each other by cross-cording.

77. (New) The method of claim 68, wherein the matrix-resin-precursor composition comprises pieces of at least one filler solid selected from the group consisting of lignocellulosic materials, cellulosic materials, vitreous materials, cementitious materials, carbonaceous materials, plastics, and rubbers.

78. (New) The method of claim 77, wherein the filler solid comprises tire rubber fragments.

79. (New) The method of claim 77, wherein the filler solid comprises a vitreous material.

80. (New) The method of claim 68, wherein the web material is kraft paper that has a basis weight of about 65 to 100 lbs.

81. (New) The method of claim 68, wherein the web material is kraft paper that has a basis weight of about 90 lbs.

82. (New) The method of claim 77, wherein the filler solid comprises tire rubber fragments, in an amount such that the rubber occupies about 20 to 90 volume percent of the core space following the completion of step (f).

83. (New) The method of claim 77, wherein the filler solid comprises tire rubber fragments, in an amount such that the rubber occupies about 45 to 75 volume percent of the core space following the completion of step (f).

84. (New) The method of claim 77, wherein the filler solid comprises tire rubber fragments, in an amount such that the rubber occupies about 55 to 65 volume percent of the core space following the completion of step (f).

85. (New) The method of claim 79, wherein the filler solid comprises expanded perlite.

86. (New) The method of claim 79, wherein the filler solid comprises expanded perlite, in an amount such that the perlite occupies about 10 to 80 volume percent of the core space following the completion of step (f).

87. (New) The method of claim 77, wherein the filler solid comprises tire rubber fragments and expanded perlite.

88. (New) The method of claim 68, further comprising a step of providing the exterior of the sleeve-like configuration with at least one coating selected from the group consisting of plant-growth repellants, fire or flame retardants, reflective particles, pigments, dyes, anti-corrosion chemicals, friction-increasing coatings, and wood veneers.

89. (New) A method of making an elongated, composite, structural material, comprising the following steps:

(a) forming a foldable laminate of two strips of porous web material selected from the group consisting of paper and cloth, with at least one strip of a band of reinforcing cords sandwiched therebetween, with the cords running in the lengthwise direction and with the strips of porous web material and all materials lying between those strips being impregnated with a thermosetting-resin-precursor mixture;

(b) folding the laminate into a trough shape and orienting it horizontally, with one of the strips of porous web material on the top and the other strip of porous web material on the bottom;

(c) depositing in the trough of the laminate, while still foldable, a fluid matrix-resin-precursor composition that is compatible with the thermosetting-resin-precursor mixture in the laminate and which, when fully reacted, yields a thermoset matrix resin that is at least semi-rigid;

(d) folding closed and sealing shut the laminate so that it surrounds and defines a core space containing said matrix resin precursor composition; and

(e) holding the closed laminate and its contents in a mold under conditions conducive to the setting of both the thermosetting resin in the laminate and the matrix resin in the core space, for a time sufficient for both resins to set, whereby (i) the laminate and the matrix resin are both made at least semi-rigid, (ii) the matrix resin, together with any filler solid it may contain, fills the core space, and (iii) the laminate and matrix resin are bonded together.

90. (New) The method of claim 89, wherein the matrix-resin-precursor mixture comprises the reactants and blowing agent necessary to form a foamed polyurethane that is at least semi-rigid.

91. (New) The method of claim 90, wherein the two strips of web material are paper.

92. (New) The method of claim 91, wherein the two strips of web material are kraft paper that has a basis weight of about 65 to 100 lbs.

93. (New) The method of claim 91, wherein the two strips of web material are kraft paper that has a basis weight of about 90 lbs.

94. (New) The method of claim 91, wherein the bottom strip of paper is a two-ply paper in which a layer of resin that is a barrier to the bleeding through of an epoxy resin is sandwiched between the two plies, and wherein the top strip of paper is devoid of such a barrier layer.

95. (New) The method of claim 91, wherein the thermosetting resin precursor mixture comprises the reactants necessary to form an epoxy resin.

96. (New) The method of claim 95, wherein the cords sandwiched between the strips of paper are comprised of continuous polyester filament and/or fiberglass.

97. (New) The method of claim 96, wherein, during step (e), the laminate is held under sufficient tension in the lengthwise direction that the outer paper layer of the structural material resulting from that step is substantially unwrinkled.

98. (New) The method of claim 89, wherein, during step (e), the cords sandwiched between the strips of paper are comprised of continuous polyester filament.

99. (New) The method of claim 89, wherein the matrix-resin-precursor composition comprises pieces of at least one filler solid selected from the group consisting of tire rubber, glass microspheres, expandable polymer beads, and expanded perlite.

100. (New) The method of claim 89, wherein the matrix-resin-precursor composition contains pieces of tire rubber containing no more than about 3 percent of belt metal, based on the weight of the rubber, and the amount of such rubber is such that it constitutes about 20 to 90 volume percent of the finished material's core.

101. (New) The method of claim 100, wherein the amount of the rubber is such that it constitutes about 45 to 75 volume percent of the finished material's core.

102. (New) The method of claim 100, wherein the amount of the rubber is such that it constitutes about 55 to 65 volume percent of the finished material's core.

103. (New) The method of claim 89, wherein the matrix-resin-precursor composition contains glass microspheres, the weight majority of which have a particle size in the range of about 5 to 225 microns, and the amount of such microspheres is such that they constitute about 2 to 90 volume percent of the finished material's core.

104. (New) The method of claim 89, wherein the matrix-resin-precursor composition contains expanded perlite in an amount such that it constitutes about 10 to 80 volume percent of the finished material's core.

105. (New) The method of claim 89, wherein the matrix-resin-precursor composition contains expanded perlite and pieces of tire rubber.

106. (New) The method of claim 89, further comprising a step of providing the exterior of the laminate with at least one coating selected from the group consisting of plant-growth

repellants, fire or flame retardants, reflective particles, pigments, dyes, anti-corrosion chemicals, friction-increasing coatings, and wood veneers.

107. (New) The method of claim 89, wherein in step (a), two strips of the band of reinforcing cords are sandwiched between the two strips of porous web material.

108. (New) The method of claim 89, wherein in step (a), the foldable laminate is formed of three strips of porous web material selected from the group consisting of paper and cloth, with at least one strip of the band of reinforcing cords sandwiched between each adjacent pair of strips of porous web material.

109. (New) A method of making an elongated, composite, structural material, comprising the following steps:

(a) obtaining a first elongated C channel of a porous web material selected from the group consisting of paper and cloth that is impregnated with a thermosetting resin precursor mixture and orienting the channel with the C facing up;

(b) impregnating a strip of cloth with a thermosetting resin precursor mixture that is compatible with the resin precursor mixture in the web material;

(c) laying said strip of cloth on the inside bottom of the first C channel, with the warp running in the lengthwise direction of the channel, so as to extend the length of the channel;

(d) depositing on the top of said strip of cloth a fluid matrix resin precursor composition that is compatible with both the resin precursor mixture in the web material and the resin precursor mixture in the cloth and which, when reacted, yields a matrix resin that is at least semi-rigid;

(e) covering the first C channel with a second C channel of a porous web material that is impregnated with a thermosetting resin precursor mixture that is oriented with the C facing down, so that the vertical sides of the two channels overlap and touch each other and the two C channels define a core space between them; and

(f) holding the two C channels together under conditions that are conducive to the setting of (i) the matrix resin in the core space, (ii) the thermosetting resin in the porous web material, and (iii) the thermosetting resin in the cloth, and for a length of time sufficient for all three resins to set, whereby the two C channels are bonded together where they overlap, the cloth strip is bonded to the first C channel, the core space is filled with the matrix resin, and the matrix resin is bonded to the cloth and the web material.

110. (New) An elongated, composite structural material comprised of a dimensionally stable core material ensheathed in a laminar covering that is bonded to the core material, wherein the laminar covering is comprised of at least one band of substantially parallel reinforcing cords bonded, by a resin, to at least one layer of a dimensionally stable web material that is exterior to the cords, the web material being selected from the group consisting of rigidified paper and rigidified cloth, with the web material and the cords being impregnated with the same resin that is used to bond the cords to the web material, the amount of the resin being sufficient to render the laminar covering dimensionally stable, and the cords being oriented in the longitudinal direction of the structural material and extending substantially the entire length thereof.

111. (New) A composite structural material comprised of a dimensionally stable core material ensheathed in a laminar covering that is bonded to the core material, wherein the laminar covering is comprised of at least one band of substantially parallel reinforcing cords that is wound spirally around the core material and is bonded to at least one layer of a

dimensionally stable web material that is exterior to the cords, the web material being selected from the group consisting of rigidified paper and rigidified cloth.

112. (New) An elongated, four-sided composite structural material having a substantially uniform, rectangular cross section throughout its length, the material comprising:

a core comprised of rubber-tire fragments embedded in a foamed polyether polyurethane resin, having a free-rise density of about 4 to about 35 pounds per cubic foot, the rubber-tire fragments constituting about 45 to 75 volume percent of the core and having a longest dimension that is no more than about 50 percent of the thickness of the composite structural material; and

a one-piece laminar covering that ensheaths the core and is bonded to the core, the laminar covering including a plurality of layers of substantially parallel fiberglass cords, each cord layer being bonded, by an unfoamed epoxy resin, to at least one of a plurality of layers of rigidified kraft paper having a basis weight of about 65 to 100 pounds per thousand square feet, wherein the cord layers and the paper layers are impregnated with the same unfoamed epoxy resin that is used to bond the cord layers to the paper layers, the amount of the unfoamed epoxy resin being sufficient to render the laminar covering dimensionally stable, and wherein the cords are oriented in the longitudinal direction of the structural material and extend substantially the entire length thereof, each cord layer comprises at least 10 cords per lateral inch, and at least one paper layer is exterior to the cord layers.

113. (New) The composite structural material of claim 112, wherein the laminar covering is comprised of a first layer of paper, a first layer of reinforcing cords, a second layer of paper, a second layer of reinforcing cords, and a third layer of paper, in that order.

114. (New) A shipping pallet comprised of deck boards and deck-support boards, wherein at least one of the deck-support boards is the composite structural material of claim 113.

115. (New) An elongated, four-sided composite structural material having a substantially uniform, rectangular cross section throughout its length, the material comprising:

a core comprised of pieces of expanded perlite embedded in a foamed polyether polyurethane resin, having a free-rise density of about 15 to 21 pounds per cubic foot, the expanded perlite constituting about 10 to 80 volume percent of the core and having a longest dimension that is no more than about 50 percent of the thickness of the composite structural material; and

a one-piece laminar covering that ensheaths the core and is bonded to the core, the laminar covering including a plurality of layers of substantially parallel fiberglass cords, each cord layer being bonded, by an unfoamed epoxy resin, to at least one of a plurality of layers of rigidified kraft paper having a basis weight of about 65 to 100 pounds per thousand square feet, wherein the cord layers and the paper layers are impregnated with the same unfoamed epoxy resin that is used to bond the cord layers to the paper layers, the amount of the unfoamed epoxy resin being sufficient to render the laminar covering dimensionally stable, and wherein the cords are oriented in the longitudinal direction of the structural material, and extend substantially the entire length thereof, each cord layer comprises at least 10 cords per lateral inch, and at least one paper layer is exterior to the cord layers.

116. (New) The composite structural material of claim 115, wherein the laminar covering is comprised of a first layer of paper, a first layer of reinforcing cords, a second layer of reinforcing cords, and a second layer of paper, in that order.

117. (New) A shipping pallet comprised of deck boards and deck-support boards, wherein at least one of the deck boards is the composite structural material of claim 116.

118. (New) The composite structural material of claim 116, wherein the core further comprises pieces of rubber tire fragments in an amount constituting about 10 to 15 volume percent of the core.

119. (New) A shipping pallet comprised of deck boards and deck-support boards, wherein at least one of the deck boards is the composite structural material of claim 118.